Attorney Docket 0553-0185.01

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of	)
Mitsunori Sakama et al.	)
Serial No.: 10/669,284	)
Filed: September 24, 2003	)
For: Semiconductor Device And A Method Of Manufacturing The Same	)
Art Unit: 3663	)
Examiner: Johannes P. Mondt	)
Confirmation No.: 6594	)

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO NOTICE OF NON-RESPONSIVE AMENDMENT

Sir:

Applicants have the following response to the Notice of Non-Responsive Amendment dated July 12, 2007, a one month extension of time being submitted herewith.

In the Notice, the Examiner states that Applicants' Response filed April 27, 2007 is not fully responsive as it does not contain the requested evidence in response to the Examiner's request for information under 37 C.F.R. 1.105 with regard to "particular experimental data showing that the lower limit and upper limit in the range as claimed for oxygen, nitrogen and hydrogen concentrations have been reduced to practice." In order to advance the prosecution of this application, Applicants are submitting the attached tables showing Experimental result 1 and Experimental result 2.

Experimental results 1 and 2 were obtained by using Rutherford Backscattering Spectrometry, each result showing concentrations of silicon, oxygen, nitrogen, and hydrogen in a silicon oxynitride film. Experimental results 1 and 2 were obtained by different companies and reported to SEL (the assignee in this case) on July 28, 1999, which is around the filing date of prior Japanese application 11-154429, dated June 2, 1999.

Sample CV210 was a reference sample, and it was manufactured by using conditions which were substantially the same as the film formation conditions #1876 of Table 1 on page 8 of the specification, in which hydrogen is not used as raw material gas. The conditions #1876 are the manufacturing conditions for a conventional silicon oxynitride film.

Sample CV210-11 was manufactured with 500 sccm of hydrogen gas. Applicants have been unable to find the detailed conditions for Sample CV210-11. Applicants note that the amount of hydrogen is the same as film formation condition #1883 in Table 1 on page 8, but cannot confirm if the sample was manufactured by using the film formation condition #1883 in Table 1.

Sample CV210-12 was manufactured with 125 sccm of hydrogen gas. Applicants have been unable to find the detailed conditions for Sample CV210-12. Applicants note that the amount of hydrogen is the same as film formation condition #1883 in Table 1 on page 8, but cannot confirm if the sample is manufactured by using the film formation condition # 1884 in Table 1.

The Experimental results 1 and 2 show that a concentration of nitrogen increases by adding hydrogen as raw material gas.

With respect to oxygen concentration, the oxygen concentrations of the samples CV210-11 and CV210-12 were closer to the lower limit of the claimed oxygen concentration than that of the sample CV210 in both the Experimental results 1 and 2. On the contrary, the oxygen concentration of the sample CV210 was closer to the upper limit of the claimed oxygen concentration than that of

the samples CV210-11 and CV210-12 in both the Experimental results 1 and 2. Applicants believe that it is possible to decide the lower and upper limits of the claimed oxygen concentration so that the oxygen concentrations in the Experimental results 1 and 2 are included in the claimed range.

With respect to the nitrogen concentration, the nitrogen concentration of sample CV210 was lower than the minimum limit of detection 5 atomic% in both the Experimental results 1 and 2. Also, the nitrogen concentrations of the samples CV210-11 and CV210-12 were close to the upper limit of the claimed nitrogen concentrations in view of error bars in both the experimental results 1 and 2. Applicants believe that it is possible to decide the upper limit of the claimed nitrogen concentration from the Experimental results 1 and 2.

With respect to the hydrogen concentration, the hydrogen concentrations of the samples CV210-11 and CV210-12 were closer to the upper limit of the claimed hydrogen concentration and larger that that of the sample CV210 in both the Experimental results 1 and 2. Applicants believe that it is possible to decide the upper limit of the claimed hydrogen concentration from the Experimental results 1 and 2. However, it seems that the lower limit of the hydrogen concentration are not shown in the Experimental results 1 and 2.

Therefore, it is respectfully submitted that in light of Applicants' comments and explanations in the Response of April 27, 2007 and the Experimental results herein, Applicants have met the Examiner's requirement. Accordingly, it is respectfully requested that the Examiner withdraw the request for experimental data.

Conclusion

It is respectfully submitted that the present application is in a condition for allowance and should be allowed.

Please charge our Deposit Account No. 50-1039 for any further fee due for this response or extension of time.

Favorable reconsideration is earnestly solicited.

Respectfully submitted,

Date: September 11, 2007

/Mark J. Murphy/
Mark J. Murphy
Registration No. 34,225

COOK, ALEX, McFARRON, MANZO,
CUMMINGS & MEHLER, LTD.
200 West Adams Street; Suite 2850
Chicago, Illinois 60606
(312) 236-8500
Customer No. 26568

Experimental result 1

Sample	[Si] (at.%)	[O] (at.%)	[N] (at.%)	[H] (at.%)	t (Å)
CV210	33.4 ±2	63.5 ±2	(1.5 ±4)	1.6 ±0.5	3500 ±100
CV210-11	33.6 ±2	53.8 ±2	9.6 ±4	3.0 ±0.5	3300 ±100
CV210-12	33.7 ±2	56.4 ±2	7.9 ±4	2.0 ±0.5	3300 ±100

Experimental result 2

Sample	[Si] (at.%)	[O] (at.%)	[N] (at.%)	[H] (at.%)	t (Å)
CV210	31.6 ±1	66.8 ±4	<5	1.6 ±0.2	3400*
CV210-11	30.0 ±1	60.5 ±4	6.0 ±5	3.5 ±0.4	2870*
CV210-12	32.0 ±1	59.0 ±4	7.0 ±5	2.0 ±0.2	2910*